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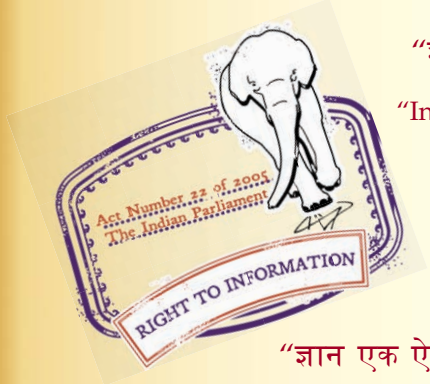

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IS : 10590 - 1983
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Indian Standard
CODE OF PRACTICE FOR MANUAL BLEACHING AND PROCESSING OF COTTON KNITTED FABRIC

UDC 677·826:677·661:677·21·064

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2

October 1983

Indian Standard

CODE OF PRACTICE FOR MANUAL BLEACHING AND PROCESSING OF COTTON KNITTED FABRIC

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Indian Standard

CODE OF PRACTICE FOR MANUAL BLACHING AND PROCESSING OF COTTON KNITTED FABRIC

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 8 March 1983, after the draft finalized by the Hosiery Sectional Committee had been approved by the Textile Division Council.

0.2 The bleaching of cotton knitted fabric is generally carried out by small scale factories without the aid of mechanical appliances. The absence of the process control sometimes leads to tendering of fabric which causes appearance of holes in the garment after one or two washes. This code is intended to serve as a guide to the processors in the proper bleaching of the fabric.

0.3 While processing, utmost attention shall be paid to avoid contamination of the bleach liquor with foreign matters such as iron, copper and their salts. It would be preferable to use tanks/baths made of glazed tiles.

0.4 The bleaching will be satisfactory if water used in the process is soft. The hardness of water should not exceed 150 ppm; better results would be ensured only if the hardness is below 50 ppm.

0.5 The bleach liquor should be filtered to get rid of solid particles, sand, etc.

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1. SCOPE

1.1 This standard recommends details of various stages of manual bleaching and processing of grey cotton knitted fabric.

1.1.1 This code is mainly for small scale processing where mechanical appliances are not readily availbale.

2. RECOMMENDED STAGES

2.1 Wetting — The rolls of knitted fabric shall be opened out and immersed in water-bath containing wetting agent (0·5 to 1 percent on the mass of the fabric) for a period of 3 to 4 hours. The common wetting agent is Turkey red oil. Wetting facilitates penetration of chemicals.

NOTE 1 — Turkey red oil should be used at room temperature and will function better if used in presence of alkali.

NOTE 2 — Commonly used anionic and nonionic wetting agents are listed in Appendix A.

2.2 Scouring — In this operation, the fabric shall be boiled for a period of 6 to 8 hours in a caustic soda bath consisting of caustic soda (1 to 2 percent depending upon the fineness of the yarn) and soda ash (about 2 percent). If required, 0·5 percent detergent (stable to alkali) may also be added in the caustic soda bath. Material to liquor ratio should be minimum 1 : 5. The temperature of scouring bath should be not below 100° C throughout the scouring process. The scouring process ensures removal of natural impurities and prepares the fabric for bleaching.

NOTE 1 — Caustic soda flakes should be dissolved separately and filtered solution should be added to the scouring bath.

NOTE 2 — Care shall be exercised to ensure that the fabric is not exposed to atmosphere. A perforated sheet of non-corrosive material, for example, stainless steel, may be placed over the fabric dipped in liquor. Alternatively heavy stone pieces may be kept on a wooden perforated plank. The fabric should not be stacked closely but somewhat loosely. However, packing should be uniform to avoid channelling and uneven scouring. A provision should be made to circulate the liquor in the bath. Alternatively, the fabric may be moved up and down with the help of bamboo sticks.

2.3 Washing — The scoured fabric shall be washed immediately in water by giving the material to-and-fro action in the water-bath. Washing (at least two cycles) should be thorough so as to free the meterial from alkali.

2.4 Bleaching — The well scoured and washed material shall be bleached at room temperature in a bleaching solution (containing 2 to 3 g per litre of available chlorine) till the material becomes uniformly white. The bleaching agent shall be sodium hypochlorite or bleaching powder. The time required for complete bleaching may vary from 4 to 5 hours. The *p*H of the liquor shall be maintained between 10 to 10·5 throughout the bleaching operation. (*See* also Note 2 under **2.2**).

NOTE 1 — The material to liquor ratio should not be less than 1 : 10.

NOTE 2 — Liquid chlorine or hydrogen peroxide may be used for bleaching. The concentration of these bleaching agents should be in accordance with the recommendations of the manufacturer.

2.5 Washing — Immediately after bleaching, the bleached material shall be washed thoroughly (at least two cycles of washing) in the water-bath.

2.6 Souring (Acid Treatment) — Washed material shall then be transferred into an acid-bath containing hydrochloric acid (0·5 percent, *v/v*) and kept for a period of 20 to 30 minutes.

2.7 Washing — The fabric shall be washed thoroughly (at least two cycles of washing) in the water-bath.

2.8 Antichlor — In order to remove traces of chlorine, the material shall be treated in water-bath containing sodium bisulphite (0·5 percent) for 20 minutes.

NOTE — Sodium bisulphite or any other antichlor agent may be used. If bleaching is done with hydrogen peroxide, antichlor treatment is not necessary.

2.9 Washing — The rolls shall once again be washed thoroughly (at least two cycles of washing) in the water-bath.

2.10 Treatment with Optical Whitening Agent and Tinting — If required, the fabric shall be steeped in a solution of whitening agent and tinting agent or blueing agent for a period of 30 minutes. A softening agent (0·5 percent) may be used along with blueing agent for fine material.

NOTE — Normaly 100 to 200 g of whitening agent and 25 g of tinting agent or blueing agent per 100 kg of fabric is sufficient.

2.11 Removal of Excess Water — The fabric shall be hydroextracted for removing excess water. In case hydroextractor is not available, the cloth may be stacked on the wall of the bath to allow water to drain out.

2.12 Drying — The fabric shall be dried carefully in shade taking care that the wet goods are not subjected to any kind of stretch lest the material gets distorted.

2.13 Steam Calendering — The dried fabric shall be steam-calendered. The material shall not be subjected to any undue stretch.

NOTE 1 — The steam calender should preferably have positive feed mechanism.

NOTE 2 — Calendering of the knitted fabric twice helps to a great extent in removing the bow effects.

APPENDIX A

(Note 2 under 2.1)

WETTING AGENTS

A-1. ANIONIC WETTING AGENTS

Wetting Agent	*Manufacturer*
Idet 5L/10	Swastik Household & Industrial Products, Bombay
Lissapol PV	Crescent Dyes and Chemicals Ltd, Bombay
Dedinon Super N	Hico Products Ltd, Bombay
Ambujapol OP	Shri Ambuja Chemicals Co, Ahmadabad
Ultra C/CN	C.D. Corporation, Bombay
Sandopan N	Sandoz (India) Ltd, Bombay
Jadinol PU	Gujchem Distillers, Bilimora (Gujarat)
Acipon T	Ahura Chemical Products Pvt Ltd, Bombay

A-2. NONIONIC WETTING AGENTS/DETERGENTS

Wetting Agent/ Detergent	*Manufacturer*
Swanic 7L	Swastik Household & Industrial Products, Bombay
Noigen CS	Dia-ichi Karkaria, Ahmadabad
Ahuran TT - 30	Ahura Chemical Products Ltd, Bombay
Ambupon NIS	Shri Ambuja Chemicals Co, Ahmadabad
Ultra NC	C.D. Corporation, Bombay
Auxipon ND	Auxichem, Bombay
Sandozin NIS	Sandoz (India) Ltd, Bombay
Cyclanon C	Capco Pvt Ltd, Bombay
Hyonic PE 90	Diamond Shamrock (India) Ltd, Bombay
Hyoxide AAO	Hico Products Ltd, Bombay
Lissapol N	Crescent Dyes and Chemicals Ltd, Bombay